

AMENDMENTS TO THE SPECIFICATION:

Please replace paragraph [0029] with the following amended paragraph:

Referring now to Figure 2, there are shown the details of a development apparatus—~~132~~. The apparatus comprises a reservoir or developing housing 164 containing developer material—~~166~~. The developer material ~~166~~—is of the two component type, that is it comprises carrier granules and toner particles. The reservoir 164 includes augers 168, which are rotatably-mounted in the reservoir chamber. The augers 168 and 169 serve to transport and to agitate the developer material ~~166~~—within the reservoir 164 and encourage the toner particles to adhere triboelectrically to the carrier granules. A magnetic brush roll 170 transports developer material ~~166~~—from the reservoir 164 to loading nips ~~172, 174~~—of two donor rolls or members ~~176, 178~~176 and 178. Magnetic brush rolls are well known, so the construction of magnetic brush roll 170 need not be described in great detail. Briefly the magnetic brush roll 170 comprises a rotatable tubular housing within which is located a stationary magnetic cylinder having a plurality of magnetic poles impressed around its surface. The carrier granules of the developer material ~~166~~—are magnetic and, as the tubular housing of the magnetic brush roll 170 rotates, the granules (with toner particles adhering triboelectrically thereto) are attracted to the magnetic brush roll 170 and are conveyed to the donor roll loading nips ~~172, 174~~. A metering blade 180 removes excess developer material ~~166~~—from the magnetic brush roll 170 and ensures an even depth of coverage with developer material ~~166~~—before arrival at the first donor roll loading nip—~~172~~. At each of the donor roll loading nips

~~172, 174~~, toner particles are transferred from the magnetic brush roll 170 to the respective donor rolls ~~176, 178~~176 and 178.

Please replace paragraphs [0030]-[0034] with the following amended paragraphs:

Each donor roll ~~176, 178~~176 and 178 transports the toner to a respective development zone ~~182, 184~~ through which the photoconductive belt 10 passes. Transfer of toner from the magnetic brush roll 170 to the donor rolls ~~176, 178~~176 and 178 can be encouraged by, for example, the application of a suitable D.C. electrical bias to the magnetic brush roll 170 and/or donor rolls ~~176, 178~~176 and 178. The D.C. bias (for example, approximately 100 v applied to the magnetic brush roll 170) establishes an electrostatic field between the magnetic brush roll 170 and donor rolls ~~176, 178~~176 and 178, which causes toner particles to be attracted to the donor rolls ~~176, 178~~176 and 178 from the carrier granules on the magnetic brush roll 170.

The carrier granules and any toner particles that remain on the magnetic brush roll 170 are returned to the reservoir 164 as the magnetic brush roll 170 continues to rotate. The relative amounts of toner transferred from the magnetic brush roll 170 to the donor rolls ~~176, 178~~176 and 178 can be adjusted, for example by: applying different bias voltages, including AC voltages, to the donor rolls ~~176, 178~~176 and 178; adjusting the magnetic brush roll to donor roll spacing; adjusting the strength and shape of the magnetic field at the loading nips and/or adjusting the speeds of the donor rolls ~~176, 178~~176 and 178.

At each of the development zones ~~182, 184~~, toner is transferred from the respective donor rolls ~~176, 178~~176 and 178 to the latent image on

the photoconductive belt 10 to form a toner powder image on the latter. Various methods of achieving an adequate transfer of toner from a donor roll to a photoconductive surface are known and any of those may be employed at the development zones ~~182, 184~~.

In Figure 2, each of the development zones ~~182, 184~~ is shown as having the form i.e. electrode wires ~~186, 188~~188 are disposed in the space between each donor roll ~~176, 178~~176 and 178 and photoconductive belt 10. Figure 2 shows, for each donor roll ~~176, 178~~176 and 178 a respective pair of electrode wires ~~186, 188~~188 extending in a direction substantially parallel to the longitudinal axis of the donor rolls ~~176, 178~~176 and 178. The electrode wires ~~186, 188~~188 are made from thin (i.e. 50 to 100 .mu. diameter) wires which are closely spaced from the respective donor rolls ~~176, 178~~176 and 178. With no voltage between a wire and a donor roll, the distance between each electrode wire ~~186, 188~~188 and the respective donor rolls ~~176, 178~~176 and 178 is within the range from about 10 .mu. to about 40 .mu. (typically approximately 25 .mu.) To this end the extremities of the electrode wires ~~186, 188~~188 are supported by the tops of end bearing blocks that also support the donor rolls ~~176, 178~~176 and 178 for rotation. The electrode wires ~~186, 188~~188 extremities are attached so that they are slightly above a tangent to the surface, including the toner layer, of the donor rolls ~~176, 178~~176 and 178. An alternating electrical bias is applied to the electrode wires ~~186, 188~~188 by an AC voltage source ~~190~~. When a voltage difference exists between the wires and donor rolls, the electrostatic attraction clamps the wires to the surface of the toner layer.

The applied AC establishes an alternating electrostatic field between each pair of electrode wires ~~186, 188~~ and the respective donor rolls ~~176, 178~~176 and 178, which is effective in detaching toner from the surface

of the donor rolls 176 and 178~~176, 178~~ and forming a toner cloud about the electrode wires ~~186, 188~~, the height of the cloud being such as not to be substantially in contact with the photoconductive belt 10. The magnitude of the AC voltage is on the order of 200 to 500 volts peak at a frequency ranging from about 5 kHz to about 15 kHz. This applied voltage of 200 to 500 volts produces a relatively large electrostatic field without risk of air breakdown. A DC and AC bias supply (not shown) applied to each donor roll 176 and 178~~176, 178~~ establishes electrostatic fields between the photoconductive belt 10 and donor rolls 176 and 178~~176, 178~~ for attracting the detached toner particles from the clouds surrounding the electrode wires ~~186, 188~~ to the latent image recorded on the photoconductive surface of the photoconductive belt 10.

Please replace paragraph [0039] with the following amended paragraph:

Applicants have found that the use of an occasional reverse bias donor roll cleaning or purging cycle, maintains print quality in xerographic development systems that use donor rolls, such as Hybrid Scavengeless Development. When such systems are run with little or no toner throughput, toner on the roll becomes difficult to remove due to increased electrostatic and adhesion forces and developability becomes difficult to control, even with increased development fields. Applicants have found that the temporary use of a reverse bias, from say +70 volts to -100 volts, totally or partially cleans the donor roll, and drives the toner back into the magnetic brush. Proper choice of the donor bias relative to the photoconductor bias would also allow some of the donor toner to be developed to the photoreceptor and, hence, to exit the developer system. ~~system.~~ Subsequent return of the donor bias to

its normal operating level allows a fresh toner layer to be deposited by the magnetic brush. This allows the donor to be refreshed, and returns print quality to nominal.

Please replace paragraph [0044] with the following amended paragraph:

In recapitulation, there is provided an apparatus for developing a latent image recorded on a movable imaging surface, including: a reservoir for storing a supply of developer material including toner particles, said reservoir including a transport member; a donor member being arranged to receive toner particles from said transport member and to deliver toner particles to the image surface at locations spaced apart from each other in the direction of movement of the imaging surface thereby to develop the latent image thereon; a power supply, connected to said donor member, for biasing said donor member to deliver toner to the image surface during a printing mode of operation; a second power supply, connected to the transport member, for maintaining a predefined voltage difference between the transport member and the donor member such that toner particles are attracted to the donor member from the transport member during a printing mode of operation; a controller for generating a donor member purge signal trigger based on sensed or calculated development conditions; and a power supply controller, responsive to said donor member purge signal, for changing the voltage between the donor member and the transport ~~member~~member during a second mode of operation thereby causing toner to partially or completely transfer back to said transport member ~~and or optional~~optionally transported to the imaging surface.